

CANADIAN MEMORY INSTITUTIONS AND THE DIGITAL REVOLUTION

The Last Five Years

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■ Introduction

Three American companies carry 80 per cent of Internet traffic. America Online has a large financial interest in two of these companies. Today there are about 1.5 million connections to the Internet; by 2010 there will be 1.5 billion. From 1993 to 1997 graphic content moved from zero per cent to 14 per cent; by 2010 it will dominate. The average capital cost to access the Internet is about \$3,000, with an annual operating cost of \$400 – enough in most of the world to support a family of four for a year. Over 90 per cent of all communication on the Internet is in English, and most activity on the Internet is commercial. In 1980 there were 411 digital databases; in 1997 there are over 10,000. Over 57 per cent of University of Calgary undergraduates prefer to access information in digital form. Only two to three universities in Canada can afford all the available databases and full text materials. A 2000 University of Calgary study for the Social

Science and Humanities Federation indicates that there are only two hundred Canadian sites that meet basic scholarly standards. Six vendors control most of the key academic databases. Fifty-seven per cent of Canadian scholars who identified a reason for not using electronic resources indicated that they were not credible (Archer 2000, Table 6).¹

What sense can be made of these apparently random numbers and events? Castells (1997) has offered a profound analysis. He argues that we are in the midst of an "information technology revolution" that is "pervasive" and which is influencing social and economic interactions. He would argue further that the adaptations of the new technologies depend very much on national identities and cultures. It should be noted, however, that in his approximately fifteen hundred pages he does not mention libraries, archives or museums even once.

If one acknowledges these memory institutions as players in the new information age, however, several conclusions become apparent. First, the "cultural democracy" of the Internet is at the moment an illusion. Content creation and access still rests with a few Western, English-speaking information aggregators who have their roots in commerce rather than in intellectual pursuits or culture. Second, there is an even more concentrated control over the best Web content than there ever was over print. This is in part because the technical capacities of the digital environment allow for the perfect commodification and control of information. Third, the early stages of content and technology development were undertaken by American government agencies, for example the National Science Foundation. Leadership has now been handed off to the private sector. Sprint, Ameritech, and Microsoft now dominate technology, and Thomson² and Elsevier high-end content. And the library world's OCLC (Online Computer Library Center), the American-based information collaborative, is beginning to dominate the English-speaking post-secondary world.

The new Web world can marginalize fragile cultures like Canada's (Pannekoek 2000). Most cultures fall prey to analyzing themselves on the Web through the "tourism" filters encouraged by Western commercial interests. Sardar and Ravet (1996, 19) offer a biting insight which has some resonance.

Once a culture has been "stored" and "preserved" in digital forms, opened up to anybody who wants to explore it from the comfort of their armchairs, then it becomes more real than the real thing. Who needs the arcane and esoteric real thing anyway? In the post

modern world where things have systematically become mementos, nature has been transformed into "reserve," knowledge is giving way to information and data, it is only a matter of time before other people and their cultures become "models," so many zeros and ones in cyberspace, exotic examples for scholars, voyeurs and other interested parties to loan on their machines and look at. Cyberspace is a giant step towards museumisation of the world.

Indeed, Canada's library, museum, and archive websites have both demonstrated and contributed to this tendency during the last five years.³

The Canadian Context

An analysis of the digital communication practices of Canada's memory institutions – its archives, libraries, and museums – illustrates that the country is verging on descending into the abyss of being such an "information" deficit nation. Canada's ability to communicate and to control its memory both now and in the future is in serious jeopardy. Our cultures are marginalized on the Web, and our university and public libraries cannot afford the costs of retrospective digitization to ensure that Canada's memory has an internationally competitive presence. What sites we do possess have fallen prey to the process of "museumisation" mentioned above. Our citizens are increasingly finding that the best information they need in order to contribute to or to challenge commercial, economic, and government interests is no longer readily available to them. And the provinces and federal government have still to determine a strategy to address the cultural issues posed by the Web, although signs exist that governments are beginning to shift themselves. There is a real and present crisis, particularly in the communication of cultural memory.

On the surface, Canada's museums, libraries, and to a lesser degree its archives, appear to have embraced the new digital communication technology of the last decade with eagerness and with success.⁴ And compared to the nations of Africa or Eastern Europe, this may be true. But our embrace of the Web in these institutions seems to have been with great celebration, but little reflection and understanding of its cultural impact.⁵

Canada's libraries, archives, and museums appear to have participated in the nation's descent into despair over the lack of digital Canadian

cultural content. To be is to be on the Web – and, if that is the only definition, Canada would appear to have resuscitated itself. However, in the environment of fiscal impossibility and policy angst, real success has been marginal. Our memory institutions are hardly able to meet their current mandates, much less those imposed by the new technologies. Canada's National Library and National Archives have fallen into an appalling state. Perhaps it was in part because decision-makers believed that libraries and archives were simply outdated – mere holders of antique print? Who wants to invest in yesterday?! Miraculously everything worthwhile would be reborn digitally – and available with little effort and for free (English n.d.). And it was often Industry Canada, not the Department of Canadian Heritage, who led the cultural charge. Culture mattered insofar as it tied into our economic infrastructure.

1. Museums

Some national memory institutions, realizing opportunity, did seize a role as cultural validators by creating a digital presence. Museums had the most aggressive public presence on the new communication instrument. Canadian museums have not lost their popularity and are visited by over 54.9 million people each year. These visitors have become critical bastions in the funding defence. At the same time that museums had to increase their paying visitation, they attempted to redefine themselves from being places of validation and celebration to places of discourse and challenge. And museums were the most aggressive of all memory institutions in the use of the Web to advance their causes. No major museum is without a Web presence.⁶

Unfortunately this presence is variable, and for the most part, information is “dumbed” down. Whatever culture is offered is generally through the “tourism” lens. Most museum websites do not reveal their intellectual antecedents and offer little meaningful intellectual sustenance. At best they validate peoples and cultures as being relevant simply by being present in the new environment; at worst they act as shills for cultural tourism. And they are almost without exception in English, and in Quebec in French, although other languages are sometimes offered as a choice. Museum websites have created the illusion of cultural access, but access to mediocrity is no access at all.

What is as important to note is that there are no museum or archives websites that are at the moment “pay for view.” Digital library materials, on the other hand, almost uniformly are, although patrons may not realize this.

Is this because museums and archives see the Web as a marketing mechanism to increase their gate and the sales in their gift shops?⁷ Is it because museum collections have never been widely used for research in the first place? Is it because the public values the museums for the spirit of the "real" which cannot be adequately captured digitally?

II. Archives

The National Archives was also an early adopter. However, the best that a few of the provincial archives managed was the automation of their catalogues, and the establishment of national rules for archival description.⁸ If the provincial archives of Alberta and Manitoba resisted the new technologies, the Provincial Archives of British Columbia and the Archives of the North West Territories managed a smattering of online content.⁹ But even their samples are so limited and the criteria for selection so vague that few scholars would ever seriously use this material in isolation from the rest of the archival documents in the collection. So, to date, archives have done little but advertise or experiment with technology.¹⁰ The next few years may see radical change. With most archives having converted their inventories to a common national format, Canadian archives are now poised to place all of these online. In western Canada this has already happened. Whether the rest of Canada's archives have the imagination and, as important, the resources to do so remains to be seen.

III. Libraries

While the majority of public libraries could not afford to be early adopters of the opportunities that the new technologies offered, they saw themselves, as eventually did governments, as the window to digital content for the community at large. Industry Canada, through its "Connecting Canadians" initiatives, as well as more modest efforts on the part of the Bill and Melinda Gates Foundation, were instrumental in providing the resources to ensure that every Canadian community would have access to digital content.¹¹ In Alberta, Supernet, the \$1-billion fibre-optic high-speed connectivity project, will ensure that every community and library has high-speed Internet capacity. Whether there will be any sustainable worthwhile content has yet to be determined.

Academic libraries became Canada's most aggressive entry point into the digital age partially because the best digital information required the

kind of buying power that only the larger academic libraries had.¹² Whether they liked it or not, Canadian academic libraries found themselves at the forefront of the true digital revolution in the communication of information. Pressed by their academic users who had no choice but to follow international information trends, Canadian academic libraries had to assume leadership of the digital revolution, particularly in acquiring content and in copyright management. It was also in the academy that the full impact of the digital revolution was being explored.

Three Trends in Canadian Memory Institutions

Three trends emerge from this revolution in communication that is impacting libraries, archives, and museums – all a direct result of the new digital structures. First, there is convergence. While in the past information and its communication had been controlled by three professions – librarians, curators, and archivists – often in separate locations and separate formats, a single point of intersection, the Web, has increasingly blurred the boundaries among the disciplines and their institutions. This is very much apparent in, for example, the twenty-seven history exhibitions that are part of the Virtual Museum of Canada, and in Industry Canada's School Net projects.

Second, information can now be more effectively commodified than it ever could in the analog world. As Canada moved into the knowledge economy, information became of increasing value. But who should pay? Should information be seen as a public utility or should it be subject to the competition of the marketplace? The old model of libraries, archives, and museums being there for the common good is being seriously challenged in the age of digital commodification. Their primary purpose is now to support the new knowledge economy! This would explain the key role of Industry Canada.

Third, memory institutions have yet to come to grips with their archival and memory roles in the new digital age. To what degree are they responsible for the preservation of memory in digital format? Are they responsible for the preservation of increasingly complex social and economic data to ensure that society's memory remains intact? If they do preserve memory of a nation's data, who has the right of access? Just the servants of the nation-state – just academics – or everyone? For the first time, the Web offers the opportunity for complete control of information. In the past,

memory institutions, particularly libraries and archives, facilitated access to their collections generally regardless of status; now they can *completely* control digital access through pin and identity numbers. What is the role of the state in the regulation of the memory institution? Increasingly users get what memory institutions and their governments feel they can have – not necessarily what users need. The next decades must see the reinvention of memory institutions and their role in civil society. The debate is just beginning.

1. Convergence

The Web has impacted the collection and exhibition habits of most memory institutions and their users. In the past, memory institutions were driven by different professional traditions developed in part because each required different types of collection spaces and had different users and different methods of communication. In the Web's virtual space, the elimination of physical constraints, the inability to segregate user types, determined that there would be a convergence in collection organization and in exhibition/communication with respect to the collections. At the same time that free Web information began to create the myth that "information was free" and that it was readily available, or ought to be, users began to ignore – and perhaps they always had – the boundaries among libraries, archives, and museums. Does it really matter whether an information resource is an archival document, a library book, or a museum object? In the past, users would often have to go to three different institutions to secure the information they needed. It became apparent from the various search engines, which now number several hundred, that this distinction was no longer relevant.

In the first years of the new cyber-millennium, Canadian memory institutions all tended to use the Web as an advertising medium for their middle-class publics. There was no evidence that anyone actually visited a memory institution because of a previous cyber-visit, so it was really an attempt by all to validate themselves as "modern," essential in a society that seemed enthralled with the Web. What is peculiar is that Canadian institutions rarely used the same intellectual rigour on the websites as they did in the more traditional pursuits of their own professions. Authorship, sources, and perspectives were hardly transparent or known, and on-site self-censorship was not unknown.¹³ It is almost as if the memory institutions thought of the Web as a "television without credits," or that the Web would

expose the fragility of any single memory profession. In Canada's national institutions the professions continue to try to define their roles with little success, often abandoning their own professional conventions and acting increasingly like amateur publishers.

It can be argued that what has happened is the McDonaldization of digital cultural information. Users seemed to want more information faster and faster and in smaller, instantly consumable quantities. The Web both created and then reinforced that tendency. Information was in screen segments, and quickly digestible. There was always the faint hunger for more and more – faster and faster. In a 2000 survey done for the Social Sciences and Humanities Federation, the University of Calgary could find only two hundred refereed sites with Canadian content on the Web that met minimal scholarly criteria. This dumbing down of cultural content on the new medium is evident in the examination of the websites of some of Canada's key memory institutions.

The key federal memory agencies have in fact used the Web as an instrument of national policy rather than education. The National Museums website, for example, highlights the Aboriginal past, women, and Canada's military past. The discomforts of racism, class, and marginalization are not topics encouraged.

Canadian museums are often thought to be at the forefront of the information revolution. The Department of Canadian Heritage, through the Canadian Information Network, has been aggressive in its interest and in exploring the topic. If in 1995 the primary interest was in encouraging museums to put their collections on the Web, by 2001 museums were encouraged and indeed active in putting up exhibitions through the Virtual Museum of Canada project. Some have also attempted to put up illustrated inventories of their collections; however, only a few are currently available.¹⁴

At best, the Canadian Heritage Information Network, through its new initiative the Virtual Museum of Canada, has provided a location from which Canadians can enter their virtual galleries. These galleries are for the most part those that were produced by SchoolNet, the digital content initiative of Industry Canada, or by the Millennium Bureau. They have become the standards to which museums generally work, although because of lack of concern over intellectual ownership it is difficult to determine which websites served as models.

By January 2002 there were a total of fifty-two exhibitions, although not all were on Canadian subjects. One of the most prominent exhibitors is

the British Columbia Heritage Branch, whose materials are worth looking at because they embody so many of the problems. Their Yale exhibit, like most on the Web, evidence a "team" approach to production. Responsibility is, however, so devolved that responsibility for content is muddled. Second, the site no longer focuses on "object" or "structure" but rather on "context." The curator appears no longer interested in material culture and how it can be used to create new understanding. Rather the curator is interested primarily in the broad historical context of the events. While some will argue that there is nothing wrong with this approach, curators are not historians. Their focus has been material culture and its context. More often than not they are not aware of the intricacies of the shifting interpretations of the historical narrative. If curators shift away from a focus on the understanding of material culture, who will assume that role?

The Point Ellice House virtual exhibit is a case in point.¹⁵ Point Ellice House is the restored nineteenth-century Victoria, British Columbia, home of Gold Rush Magistrate and Commissioner Peter O'Reilly. On the website the traditional approach to the house museum is reinforced, with much focus on individual artifacts, including the accession records. But the interpretation is shocking. The vehicle for interpretation are a group of "gossipy" and "oppressive" women. It would seem that those responsible for the site were ignorant of recent historiographical trends and chose to reinforce old stereotypes.

Has the site, last updated in 1996, used the new technology to improve communication? Hardly! At best, if the "Well, hello there! I hope you are enjoying your stay at Point Ellice. It's just about teatime – the perfect time to trade GOSSIP! So pull up a chair" approach does not work, an alternative tour is offered by a Chinese houseboy introducing his replacement to the house. He does so in exceptional English, with minimal rancour at all at the inhumane treatment of his people. There is considerable focus on the obvious material wealth of the European culture of the home, but little on the life of its Chinese servant. There is no real interaction, and the technical abilities of new softwares are not used at all. It would be interesting to measure the impact of this site on community understanding and on the school curriculum.

The National Archives emulated the leadership of the National Museums, but only in 2001. In its budget submission to Parliament that year, the National Archives promised the following:

Using the Internet as its primary vehicle of service delivery, the National Archive of Canada will increase Canadians' access to the sources of their history, to unique, authentic and reliable, timely and easy-to-access information about Canada. The Archives will develop quality Canadian digital content based on its vast multimedia holdings. Its expanded digitization program will connect Canadians, particularly youth and lifelong learners, with the riches of Canada's archival heritage on line and in both official languages (National Archives of Canada 2001, 12).

The National Archives is now a "publisher" responsible for creating new content as well as collecting, and organizing. Its website now has sections on publications, exhibitions, and "Virtual Memory Exhibitions." As far as can be determined, publications are full text with authorship, exhibitions are physical exhibitions on-site, and virtual exhibits are just that. There is a credits page, but the team is so diffuse that it is difficult to determine who is responsible for historiographical thrusts. It is interesting, however, to note that the production needed as many experts as a Hollywood spectacle.¹⁶

The National Archives, given its critical leadership and financial role and its stature as a national body, will ensure that national rather than regional agendas are met in its projects. Its "The Canadian West" would seem an exception, but much of the interpretation is from a centralist perspective. Generally its new creations are in politically appropriate subject areas like living memory, Aboriginals, women, war, and other current items of political correctness high on the current ruling party's agenda.¹⁷ The theme of "Pride and Dignity" on the website hardly conjures up the oppression that was the reality for so many new Canadians.¹⁸ Historica, Canada's not-for-profit foundation, not the National Archives, has put up a unit on the First World War internment of Canada's Ukrainians.¹⁹ But Historica, like the National Archives, has no transparent criteria for inclusion or non-inclusion of material in its websites.²⁰

What has the National Archives really accomplished in the area of full text, or complete fonds? They have the military attestation papers, their much-appreciated fond-level descriptions, and a few unique collections. No one would argue that they should digitize all of their collections – only that they should be thoughtful and transparent about why they are doing what they are doing. But perhaps those that are the most used, and those that are most critical to national identity – like the prime minister's papers – might be placed on the Web first. What the National Archives has been most

successful at has been providing a platform from which the great full text collections can be digitized and placed on the Web.

Regional archives have also been active, although there are few total fonds. The Archives Society of Alberta, an unlikely leader in "sex memory," has attempted to sell archives with exactly that. In 2000 they created a site, "Passion Preserved."²¹ It offered single images from archival collections around the province, each of which illustrated a single passion: lust, love, pique, obsession, loyalty, mania, yearning, wrath, desire, and agitation. The "tongue-in-cheek" approach to political as well as sexual passions was appreciated, but who was responsible for the selection, if anyone? The Moshie Shafdie Hypermedia Archives at McGill, while an apparent example of the riches that can happen, is also a cyber-exhibition rather than an archives.²² The site, however, does provide a single intellectual authority – Irena Murray, Curator-in-Chief, Canadian Architecture Collection.²³ The role of the librarian is also noted. It is interesting that in this case professionals called "curators" and "librarians" do digital exhibits, not those with the title "archivist."

The Glenbow Archives has only a few of its hundreds of thousands of photographs on the Web.²⁴ The Canadian Women's Archives, founded in 1977 at the University of Ottawa, offers the least of any archives regardless of format.²⁵ In 2001 its site contained no listing of the collections. The Canadian North West Archives database is an excellent project, which now includes most western archival descriptions at the fond level. Keyword and Boolean searches are both possible.²⁶

If archives have been quick to recreate the "virtual exhibits" of museums, they are ultimately further ahead in making their collections accessible because of their commitment to CAIN (Canadian Archival Information Network) and RAD (Rules for Archival Description). In the coming years, scholars in particular hope that they will tie full text to their catalogues. That will begin to test the full power of the digital environment. Canadians can then interpret their own past rather than relying on the guiding hand of memory professionals.

The most profound contribution has been by Canada's libraries. Individually and as members of large collectives, libraries have done a great deal to develop digital information bases and to connect Canadians to information. First, through their commitment to MARC²⁷ catalogue records, and then to Dublin core metadata, libraries had developed standards as early as 1995. These ensured that, as the Web became more robust, individual library catalogues could be combined into "union" catalogues,

and most important, that there were common searching protocols.²⁸ The National Library's Amicus bilingual database, which was first conceived in 1993 and made available last year on a no-fee basis to Canadians, contains over twenty-four million bibliographic records of Canadiana, including books, magazines, government documents, theses, sound recordings, and maps. It makes accessible forty million holdings from over thirteen hundred Canadian libraries through interlibrary loan, allows the display of full bibliographic records from five hundred Canadian libraries, and, most important, allows the downloading of these records, making cataloguing for Canadian libraries a much less costly task. The National Library would also like to create a "virtual Canadian union catalogue," and this remains very high on its agenda.

The importance of machine-readable cataloguing should not be underestimated in the communication of digital cultural memory. If all catalogues were on the Web and if all new digital material and all repurposed material were made available through direct links from existing cataloguing records – not an impossible task – there would be structured access to digital information, with potential for full-text searching across data sets.

Currently, however, the initiative to link Web-based catalogues to full text materials is centred in the United States in Dublin, Ohio, at OCLC (Online Computer Library Center) through Worldcat, with its over forty-seven million unique records. If OCLC were to offer to all libraries the opportunity to deposit their digital content at no cost and link it to their cataloguing records, they would become the single most powerful memory repository in the world. The assumption will likely be that your own records will be freely accessible to you, but that there will be a charge for accessing those of other depositors. While libraries could link directly to other digital content providers, it would be easier and more cost-effective to link for a fee to assured records with constantly updated links. The implications of having all of the world's memory managed by one institution is something that is both exhilarating and frightening. What would be the implications for Canada's cultural sovereignty, if any? While some would argue that this is evidence of the real erosion of national boundaries, others would argue that it only increases the influence of wealthy nation states through their corporate expressions. What would happen should the American government, for example, refuse the export of deposited data for reasons of national security?

But rather than focus on being the repository for Canada's digital information, the National Library chose to display its technological prowess

in another way – the digitization of sample collections. The National Library intends to continue (with Industry Canada money) the development of the Glenn Gould site, to digitize selected rare book illustrations, information about selected Governor General's Literary Awards recipients, and a bibliography of doctoral research on Canada. It is interesting to note that, except for a handful of libraries like the City of Calgary Public Library and the Toronto Public Library, few have chosen to copy the National Library and aggressively participate in the "creation" of new Web resources in the form of "cyber" exhibitions.

In March, 1997, however, the National Library did take an initiative in digital libraries, consulting with libraries on the state of their digital collections. Now the nation has a collaborative of twenty-two libraries largely from the academic sector, the Canadian Initiative on Digital Libraries (CIDL).²⁹ With funding from the Department of Canadian Heritage, in late 2001 it spearheaded through the University of Calgary Press and the University of Laval library the digitization of all of Canada's local histories.

But for the most part Canada's libraries, archives, and museums have yet to pull together a concerted vision of communication of information in the new digital age. At best, libraries, archives, and museums and their professions acknowledge responsibility for collections whose primary common characteristic is that they contain memory information. All acknowledge an equal interest in making these collections available and interpreting them to a larger audience. What does this mean? Whether a curator developed a Web tour, an archivist an exhibition, or a librarian an online bibliography – all had become "e-publishers." All have abandoned their more traditional focus of providing access to collections in favour of becoming Web-based publishers of mediated, selected, and interpreted materials, with context being more important than the information inherent in the object itself. But were they effective in their new role as publishers?

In fact, in this natural movement toward convergence, the coordinating discipline – that of the publisher – is absent. The Canadian literary and academic presses and their distributors, with few exceptions, have not participated in the digital age. Canada's large commercial houses, like Thomson-Gale, however, did, and became internationally successful giants.

II. Commodification

In the 1990s, the word's best digital information became commodified and its access controlled. Medium-sized Canadian universities each host approximately eight thousand digital journals. All of Canada's public and academic libraries found increasing difficulty with the new digital databases. This was not only because of cost. They found that the restrictions on who could have access to these data sets flew in the face of their own traditions of ensuring access. Within five years, print information that had once been public was now for the most part restricted to a clientele defined by licence. When you log onto any Canadian library site, minimally you have to have your library card number for remote entry. It can be argued that this is no different than it has always been when any visitor to the library could access information and with a card take it home. However, the technology demands and at the same time allows more. No Canadian library, for example, allows the acquisition of a library card through the Web, which might permit immediate access to digital full text.

In university libraries the situation can be even more serious. Model licences do suggest that "walk in" traffic be allowed (Yale University Library 2001). However, many academic library catalogues indicate that the material is available to "faculty and students" only, discouraging all but the most persistent "walk in" user. The licences present further challenges. They often limit location of access, and many do not allow the library to keep a copy of the full-text materials when the licence expires. Some libraries are refusing to sign licences that preclude archiving rights. With print, the issues never arose.

Licences also attempt to limit the number of hard copies and the transmission of full-text digital articles to other users. Community borrower cards at university libraries, by no means inexpensive, do not usually provide remote, or indeed in some cases any, access to electronic data where institutions have decided to restrict access through pins and ID's. So if libraries in the past were the points of access to the information needs of society, insuring that everyone at least had access to material, that is no longer true. The situation is likely to become more complex.

With the increasing possibility of revenue through controlled access, copyright issues also became of greater concern. The Canadian Association of Academic Libraries has enunciated a strong digital copyright policy which would protect intellectual property rights while favouring clearer education uses, but Canada as a nation has yet to define its digital copyright position.

To date, the law is decidedly on the side of the creator, with little concession to the needs of learners.

The increase in costs that came with change in form has not been understood by decision-makers. The myth remains that the cost of information on the Web is "free" – just as libraries are "free." Yet this is far from the truth; retrospective digitization and creating new digital information involve incredible intellectual and capital costs, just as the traditional library did. Most of the electronic product, which has taken an incredible amount of capital to develop, costs well into the tens of thousands of dollars, a price beyond the reach of any but the wealthiest Canadian libraries. Indeed, probably only three Canadian libraries can afford all of the digital information that is currently available. It is not an accident that cultural materials have almost entirely been subsidized by governments or foundations.

Is there an alternative to the traditional models of funding? Libraries and their users want to have access to information in perpetuity. The tradition of paying for information on a per-view basis or leasing information on an annual basis is alien. The 1990s have seen experimentation, but few successful options, particularly for cultural materials. One model supported by libraries was that offered by Colorado-based netLibrary.³⁰ It sold individual titles and collections to public, academic, or corporate libraries and allowed individual library patrons to borrow an e-book for a specific time period. Libraries also had perpetual archiving rights to the e-books they purchased. But in the dot com shakedown of 2002, the company failed and accepted an offer by OCLC. While this model of commodification proved acceptable to many American publishers, Canadian publishers were late participants. Many thought the e-world would disappear, and those who did not participated in netLibrary. Questia,³¹ another model, aimed to sell directly to undergraduate students or faculty at approximately US\$20 per month or US\$150 per year for access to the entire collection of ultimately some forty thousand volumes. Publishers were paid, not by individual title, but by the number of hits their titles received. Some Canadian publishers have made their backlists available to Questia, but there have been few Canadian student subscribers. Compared to netLibrary, revenues were minimal for most Canadian publishers. And Questia, like netLibrary, also faced financial uncertainty in 2002. Other models that are being offered are publishing collaboratives. In these, universities would become members of an e-publishing co-operative through annual payments based on the number of scholars in their institutions. The e-publishing co-operative would then referee and make

the publication available at no cost to anyone who wanted it. Those scholars who wanted to submit a manuscript, but whose university did not subscribe, would have to pay a page fee of several hundred dollars. Whether this model is sustainable or could work in Canada remains to be seen. It would seem on the surface that the digital future for Canadian libraries will be confined to full-text government material, retrospective material for which copyright has expired, and journal literature at exorbitant cost.

Large collections of current Canadian monograph materials will likely continue to have to search for a model that will meet market conditions. And given the traditional government funding sources for Canadian publishers, it is unlikely that, without change to these programs, there will be the fountain of innovation. For example, while early on, netLibrary digitized retrospective content for free, now it cost-shares only those items it feels essential to its collection – i.e., those that have market appeal. If a publisher insists on inclusion – and netLibrary agrees to list the book – the publishers will have to pay the full cost. Since Canadian studies is not of burning interest internationally, and the Canadian market is very small, Canadian titles are not frequently requested. So Canadian students pursuing digital information by key aggregators may not find themselves or the memory of their country in international digital collections.

One of the responses to the commodification of information and the rising costs of information has been the formation of Canadian consortia, themselves co-operating again through the newly formed Consortia Canada. Their effort has been to begin licensing electronic resources at regional and at national levels. Contributing consortia include: the Alberta Library, the Council of Atlantic Librarians, the Consortium of Ontario Libraries, the Council of Federal Libraries, the Council of Prairie and Pacific University Libraries, La Conférence des recteurs et des principaux des universités du Québec, the BC Electronic Library Network, the Manitoba Library Consortium, the NEOS Library Consortium, Novanet, the Ontario Council of University Libraries, and Saskatchewan's Province-wide Library Electronic Information System. Their priority has been and continues to be to acquire broad-based full-text content, databases, and electronic resources. Canada's sixty-four senior universities and colleges have themselves been successful in accessing \$20 million over a three-year period to support a \$50 million project to acquire high-end scientific material.³² Even then, a research-intensive university like the University of Calgary, reputedly the fifth largest in Canada, can only afford 25 per cent of all the digital material a research university ought to have. Yet how successful these will be in an

international information marketplace that sees Canada as a smaller version of California is yet to be determined. Some information providers are indicating that in the future they may deal only with individual institutions. Consortial buying was costing them too much.

The commodification of information will continue to be the single most important problem for Canada's publishers, Canada's creators, and Canada's libraries. The formula for success which will allow creators and publishers to make a living while ensuring that libraries can preserve their access principles continues to elude. Solutions seem to rely on state intervention of one kind or another. Several initiatives are underway in Canada. School Net, the National Library-sponsored Canadian Initiative on Digital Libraries, and Early Canadiana on Line all rely on Canadian government or foundation funding. It is interesting to note that much of the foundation funding for Early Canadiana on Line was from the Pittsburgh-based Mellon Foundation. More recently, Historica, the Bronfman family initiative, seems to be offering hope. But it survives with government support as well. Most important of all, it exhibits all of the same tendencies as the senior memory institutions, with too often marginal, dumbed-down, celebratory content.

If Canada is to be an active participant in the information age, a new national information policy must be aggressively developed. In October, 2001, the University of Calgary and the University of Montreal held a conference in Calgary entitled "The Information Deficit: Canadian Solutions" to attempt to address these issues. While the issues were identified, and recommendations made, no strong future directions were offered. We don't yet know how we will communicate our cultural memories to the next, the digital generation.

III. Controlled Access

Even as digitally published information becomes increasingly restricted to those who can pay, other restrictions were also being placed on information, particularly primary information that is critical to the production of new knowledge. In 1983, Canada passed its Freedom of Information legislation, and a number of provinces soon followed suit – without much thought as to its implications for libraries, archives, and their community and scholarly users. These Acts, while seeming to advocate access to information that had been previously closed, did the opposite. For the first time, severe restrictions were placed on a citizen's access to information collected by the government.

While the notion of restricting a person's private information was sound, it created a situation which left archives unable to provide scholars with the information they needed to undertake even aggregated social science research. In a democratic environment, this is particularly dangerous. Civil servants will have access to the information they need to develop programs and policies, but those who should be testing these assumptions will not always get access to the same data. The recent initiative on the part of Statistics Canada to provide to approved scholars on a need-to-know basis access to raw unaggregated data through the Canadian Foundation for Innovation-funded Research Data Centres in Canada's regions is a first step to allowing the use of previously confidential data.³³ However, few provinces show an inclination to follow the lead. The anecdotal evidence continues to suggest that Canadian scholars are continuing to use European and American data to test their theories because Canadian material remains too restrictive. The cost of Freedom of Information and Privacy (FOIP) compliance alone remains a major hindrance.

One of the key issues for Canada has been the inability of Canada and its archives or libraries to archive the digital data sets created at considerable expense by Canada's scholars, its public affairs institutes, and its statistical agencies. It has been estimated, for example, that there has been over \$1 billion worth of quantitative data alone generated by scholars in this country and only perhaps at best \$10 million has been archived for future use. Although the Social Science and Humanities Research Council has urged scholars to deposit their data sets with their respective universities, virtually none have done so. The loss of these unique data sets to archives and libraries not only prevents future scholars from generating new knowledge, it also prevents the testing of previous hypotheses without very expensive replication. It is a major impediment to scholarly communication, to testing social assumptions, and to accountable government. Canada remains the only G8 nation without a national data archiving policy. What is important is that Canadian agencies, particularly the National Archives, the National Library, university libraries, Statistics Canada, and the Social Science and Humanities Research Council have realized that the issue is a serious one and are exploring solutions. These cannot be implemented too quickly before another generation of national digital memory is lost.³⁴

Equally important, Canada has not yet developed policies which would ensure that digitally created or repurposed material will be appropriately maintained by its memory institutions. In its 2001 brief to the

federal government, the Canadian Library Association carefully outlined the problem:

... those electronic documents which are continually "updated" can also create a serious issue – publications which are always "current" cannot show how they have changed over time. The result is that previous editions of publications run the risk of disappearing altogether if they are not archived before the next changes occur. Thus, enhancements and improvements to equipment and software need to be accompanied with a commitment to ensuring ongoing access by archiving information produced by the Canadian Government. (Canadian Library Association 2001)

If Canada does not soon come to grips with the implications of having no digital archive strategy, the nation will be unable to maintain its national memory and the viability of its national memory institutions and professions.

■ Conclusion

Libraries, archives, and museums, Canada's chief memory institutions, have been taking a leadership role in shaping the future of Canada's cultural communications. While there is convergence among the three, it is worthwhile noting that Canadian publishers are not in the mix. It may be that publishers are "middlemen" who don't add value to the process of communication. If memory institutions can validate the quality of information and deal directly with "creators" or become "creators" themselves, then perhaps Canada is witnessing a revolution in communication. However, if this is the case, why are we not seeing a serious fall in Canadian publishing output? What the memory professionals have been the best at is the creation of the tools to find the new information. What they have an increasing responsibility for is "information literacy." The Internet has inspired a degree of chaos. Everyone, whether government, memory institution, scientist, or crackpot, can be their own publisher. And that information can be available from a library terminal, from the office desktop, or from the home. While the best information will always require payment, likely from a consortia source, and

in rare cases by the individual, the bulk of citizen information will come from the "free" alternatives. This will require judgment and the highest information literacy skills. Memory institutions will start to develop search engines that are designed to find and rank Canadian materials. They will begin to develop information standards, to teach information and media literacy. As information becomes more chaotic and as the number of websites relating to Canada increases exponentially in the next five years, the organizational and validation efforts by Canadian libraries, archives, and museums will become of paramount importance. But funding will remain a key issue and the cyber-objectives will increasingly conflict with traditional mandates. Those institutions that represent mainstream Canada with their significant budgets will have to ensure that those on the margins continue to be involved in the dialogue.

Meanwhile, six key questions will have to be appropriately and imaginatively addressed by Canada's memory professionals if the nation's cultural memory is not only to survive but flourish in an increasingly converged and internationalized environment.

First, audience behaviour and user needs will have to be understood. Canadian memory institutions have little information on the needs of clients – most is intuition. The most serious research deficit has been knowledge about users. What do users want in repurposed material? How do users use repurposed cultural material? Are repurposed materials reconstituted in new data forms? How do different age and societal groups use repurposed cultural materials?

Second, the professions will have to resolve issues surrounding archiving. Canada has no provincial or national protocols, strategies or mechanisms to ensure that the considerable investment in repurposing will be available to users even five years from now. The development of strategies for archiving at a national level that are transportable and scalable to an international level is critical. The information base of the new knowledge economy is not sustainable without such a strategy. How much repurposed or digitally created material should be preserved? What is the role of memory institutions? How does convergence among libraries, archives, and museums impact the decisions?

Third, the professions will have to begin to evaluate technical standards for creation, communication, and preservation. There are a number of national and international protocols by memory institutions for the preservation and repurposing of materials. There has been, however,

no investigation as to whether these standards are being applied and, more important, whether the standards are reasonable.

Fourth, a model for the creation and repurposing of Canadian cultural memory that is sustainable will have to be developed. There has as yet been little discussion in Canada as to the appropriate economic models to ensure sustainability for digital cultural memory. Is a model that encouraged the commodification of information in the public domain possible? What role do cultural memory institutions have in making materials available? What responsibilities do they have toward archiving? What new public policy models might be needed? What should be the role of the marketplace? What new models can be created? Research is required to determine alternatives within the Canadian cultural context that might work.

Fifth, the various digital activities of memory institutions should be interoperable. That is, it should be possible to harvest data from a number of national memory projects. At the moment, that may or may not be possible. There have been some attempts through the Open Archives Initiative toward an interoperable model that could harvest across national barriers (Shearer 2002). Results of these have been variable at best. For repurposed memories to add value, particularly to the research community, it is critical that there be linkages among databases. An important data set that would be worth examining and determining protocols for linkages would be European, American, and Canadian records and data relating to immigration and emigration.

Sixth, and most important, memory institutions and professionals will have to come to grips with their role in creating new knowledge from digital information. The assumption is that repurposed and reborn digital information is more complex and has more opportunities for innovative curricula and research use than analogue material, and that memory professionals must "digest" the material and design a new curriculum for its use. But who is responsible for taking, for example, the Alberta Heritage Digitization Project and determining the new questions, or the new interactive curricula? Perhaps it is time that educators, publishers, and those involved in other presentation become involved in the debates.

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Notes

- 1 See also <http://ahdp.lib.ucalgary.ca/hssc/> [accessed August 18, 2000].
- 2 See <http://www.galegroup.com/>
- 3 See, for example, the essays on Pacific cultures and the WWW in Hawisher Selfe (2000). Particularly interesting is Kitalong Kitalong, 95ff.
- 4 See <http://icom.museum/vlmp/canada.html>
- 5 Ibid. But for the rest of the world, it is worth noting that where "hits" are recorded, they are few. For example, the Bahrain national museum at <http://www.bnmuseum.com/English.htm> has 201 hits. (The number of hits includes the Arabic version.)
- 6 See the Canadian Information Heritage Network at <http://www.chin.gc.ca/> For the virtual exhibit collection see <http://www.virtualmuseum.ca/English/Exhibits/index.html>
- 7 The Royal British Columbia Museum site at http://rbcm1.rbcm.gov.bc.ca/index_rc.html is the exception to the rule in providing full text of selected research papers by the staff.
- 8 Canadian Council for Archives, "Rules for Archival Description," available at <http://www.cdncouncilarchives.ca/archdesrules.html>
- 9 See <http://pwnhc.learnnet.nt.ca/databases/index.htm>
- 10 See <http://pwnhc.learnnet.nt.ca/exhibits/teadance/teadance.html> The tea dance exhibition is replete with the marvels of technology, including full sound, textual additions, and the biographies of American anthropological authorities.
- 11 See <http://www.connect.gc.ca/>
- 12 Canadian Association for Research Libraries, "Copyright Forum Discussion Paper on Digital Copyright Issues," available at http://www.uottawa.ca/library/carl/frames_index.htm
- 13 In the Virtual Canadian Museum site, for example, institutions rather than individuals are cited as "authors." The credibility of the institution rather than the intellectual prowess of the individual seems to matter most.
- 14 For sample online inventories see http://www.chin.gc.ca/English/Artefacts_Canada/index.html. The humanities database has about 2.5 million objects, the natural science base about 1 million objects, and the archaeological inventory about seventy thousand sites. There are, however, few entries with images, and the very generality of the descriptions will make most of little use to the citizen at large.
- 15 See <http://collections.ic.gc.ca/peh/>
- 16 See http://www.archives.ca/05/0529/052902/05290299_e.html
- 17 See http://www.archives.ca/08/08_e.html
- 18 See <http://209.82.14.226/history/internment/>
- 19 Historica was founded by the Hon. Charles R. Bronfman and is best known for its Heritage Minutes, its Heritage Fairs and its involvement in education. See http://www.historica.ca/historica/eng_site/index.html#
- 20 See the credits for the Western Canadian exhibit at http://www.archives.ca/05/0529/052930_e.html#030 It is impossible to determine who is responsible.
- 21 See <http://www.archivesalberta.org/passion/passion.htm>
- 22 See <http://cac.mcgill.ca/safdie/>
- 23 See <http://cac.mcgill.ca/home/about2.htm>
- 24 See, for example, the lantern slide show at <http://www.glenbow.org/lantern/lantern.htm>
- 25 See <http://www.uottawa.ca/library/archives/cwma-acmf-e.html>
- 26 See <http://aabc.bc.ca/aabc/icaul.html>
- 27 Machine Readable Cataloguing (MARC) is the standard for library cataloguing managed by the Library of Congress. Canadian MARC standards are modified by the National Library of Canada.

- 28 The history of the Dublin Core Metadata Initiative can be found at <http://dublincore.org/about/history/>
- 29 See <http://www.nlc-bnc.ca/cidl/>
- 30 See <http://www.netLibrary.com/index.asp>
- 31 See <https://www.questia.com/LoginMediator.qst?action=displayLoginForm>
- 32 See <http://www.uottawa.ca/library/cnslp/>
- 33 A good summary for the Research Data Centres exists at http://www.stats.uwaterloo.ca/Stats_Dept/SWORDC/history.html
- 34 For a report on the consultations on a National Data Archives to date, see <http://mmsd1.mms.nrcan.gc.ca/archives/>